

Habitat Development Technical Working Group 2000 Summary

Chair: Curtis D. Tanner, U.S. Fish and Wildlife Service
Telephone: (360) 753-4326

In previous years, the Habitat Development Technical Working Group (HDTWG) has identified and developed habitat restoration projects for completion under the EB/DRP. Much of that work has been completed, and we are now meeting with Project Managers to work through remaining issues so that implementation may proceed. With an eye toward the future of habitat projects following construction, the focus of 2000 HDTWG work was post-project "follow through" activities, including monitoring program and stewardship program development.

The following is a summary by project activity of major HDTWG activities in 2000.

Elliott Bay Geographic Focus Area

Elliott Bay Nearshore (Figure 3)

Project Manager: Randy Shuman, King County Water and Land Resources Division (WLR)

Project Coordinator: Margaret Duncan, The Suquamish Tribe

Monitoring of substrate enhancement activities continued, with substantial support from volunteer divers. In addition to video transects, invertebrate samples were collected to evaluate prey resource production. King County distributed draft monitoring reports for HDTWG review. Comments were incorporated into a final report that was distributed in December. Additional project work was discussed by HDTWG, King County, and the Corps of Engineers.

Kellogg Island Geographic Focus Area

Seaboard Lumber (Figure 4)

Project Manager: Kevin Stoops, City of Seattle, Department of Parks and Recreation

Project Coordinator: Curtis Tanner, U.S. Fish and Wildlife Service

Construction activities, initiated in 1999, continued through the winter. Site planting was completed in the spring. Goose excluder boxes were installed on portions of the intertidal area of the site. Glen St. Amant, Muckleshoot Indian Tribe, raised concerns with the goose 'boxes' excluding fish and wildlife species from habitat utilization. Dr. Clark provided a slide presentation of the various types of goose exclusion devices used at restoration sites throughout Puget Sound. Discussions followed relating to the use and experimentation of the goose exclusion boxes. It was decided that the boxes should be removed following an initial period of experimentation to determine appropriate intertidal plant species for the site.

Seattle City Parks issued a press release in late November, requesting public input for a new name for the site. Discussions with Muckleshoot and Suquamish tribal archeologists lead to

identification of several appropriate names for the site. These names were forwarded to Parks by the Panel for their consideration.

Turning Basin Geographic Focus Area

Hamm Creek Estuary (Figure 5)

Project Manager: Mike O'Neil, King County DNR

Project Coordinator: Dr. Robert C. Clark, Jr., NOAA

Jody Heintzman informed the HDTWG that the King County DNR held a half-day retreat at the Hamm Creek site on April 12th to conduct plantings along the street-side of the restoration project. The Corps of Engineers completed excavation of the stream realignment in mid-July, finalizing the construction phase of the project. Construction contingency funds were utilized to remove several hundred fish (cutthroat trout and coho salmon) from the old channel and for touch-up grading on areas of City Light property. Tom Dean, People for Puget Sound, reported that an irrigation system is being installed and a volunteer planting session occurred October 14-17 in areas where excavation had been recently completed.

Turning Basin No. 3 (Figure 6)

Project Manager: Roderick Malcom, Muckleshoot Indian Tribe

Project Coordinator: Joanne Polayes, Ecology

The Project Manager continued to work through environmental compliance activities, including completion of an Environmental Assessment for NEPA compliance, and a Biological Assessment for ESA consultation. FishPro was contracted to create construction bid documents, review bids, and to assist in awarding a construction contract.

North Wind's Weir (Figure 7)

Project Manager: Michael Lozano, King County Dept. of Construction and Facility Mgmt.

Project Coordinator: not yet assigned

As the project Manager continued to work on environmental compliance activities, new issues have been raised. City of Tukwila staff raised concerns about the stability of the new bank, and requested "indemnification" for project failure since we are not using riprap to stabilize the channel sides where the project connects to the river. This requirement was later dropped after discussions between project geotechnical consultants and City engineers. The Biological Assessment for the project underwent review by King County's Biological Review Panel, necessitating several revisions to the draft document before final approval was given to proceed with ESA consultation.

The Project Manager reported that construction costs have increased due to inflation and loss of cost-sharing envisioned with concurrent park construction. Costs now tied to estuary construction include asphalt demolition and removal; tree, brush, sod, and debris removal; temporary erosion control; earthwork excavation and haul; removal and replacement of significant trees; and permitting requirements. A revised project cost estimate was provided. The group agreed that decoupling construction of the estuary from the park would increase the cost of the

project cost, and what is important now is getting to construction. Mike Lozano and Robert Swartz stated that project construction was planned for Fall 2000.

Late in the year, Seattle Public Utilities - Water Department identified issues associated with a 20-inch water line that passes near the proposed restoration area. These and other issues lead to a delay in project construction.

In response to questions raised by Margaret Duncan regarding site stewardship, Deb Snyder, King County Parks, was designated as the person in charge of stewardship at North Wind's Weir and participated in the working group discussion about stewardship and monitoring for each of the projects. She also described her agency's resources and needs.

Real Property Acquisitions for Habitat Development Purposes

Site #1

Robert Swartz provided a memorandum from Linda Hanson outlining a funding strategy for the acquisition of Site #1. Panel funds currently obligated for this would be reallocated to Site #1 acquisition. The County proceeded with raising additional funds necessary for site acquisition, and began negotiations with the property owner.

Green River Acquisitions

King County completed acquisition of parcels at the Porter Levee site (Figure 8); Linda Hanson reported the final cost accounting for the site was \$241,226.70.

Monitoring Program

The HDTWG met with People for Puget Sound (PPS) to discuss their "Volunteer Salmon Habitat Restoration Monitoring Program." The groups discussed possibilities for cooperation, and the areas of overlap between EB/DRP monitoring and stewardship and PPS activities. Because no monitoring was to occur in 2000, Project Managers were encouraged to cooperate with PPS, so that some information on the development of habitat at the Seaboard and Hamm Creek sites would be gathered. These sites were included in PPS's efforts during 2000, and PPS dedicated significant amounts of volunteer stewardship time to the Hamm Creek site for installation and care of vegetation and goose exclusion.

The Intertidal Habitat Projects Monitoring Program underwent external review, and some changes to the original document were incorporated into the revision. These include elements related to groundwater sampling and program management. USFWS management suggested that, for safety reasons, it would be necessary to budget for a minimum of two biologists for field activities requiring "in-water" work.

The Panel approved Resolution 2000-08 adopting the FWS document Intertidal Habitat Projects Monitoring Program (Panel Publication 23) in July. At their October meeting, the Panel approved USFWS management of the project, and authorized release of funds from the Court

Registry Account to a Department of Interior - Natural Resource Damage Assessment Restoration account. Interest accrued from monitoring program funds will be used to supplement Panel monitoring funding. Any funds remaining in the account following completion of the monitoring program will be dedicated to additional Duwamish River estuary restoration activities.

Stewardship Program

The working group discussed stewardship issues related to Panel projects. In March, questionnaires were distributed to Project Managers to help identify the types of stewardship activities necessary for their respective projects. Margaret Duncan circulated and received these worksheets from all Project Managers and incorporated them into a stewardship planning document. This document will help identify specific project stewardship-funding needs which the EB/DRP Panel can address. The HDTWG developed a stewardship budget for the Hamm Creek estuary site and the Panel approved it. Budgets for other projects will be developed in the near future.

Agency contacts for stewardship were identified as follows:

Hamm Creek Estuary: Mike O'Neil, King County
Turning Basin No.3: Glen St. Amant, Muckleshoot Tribe
North Wind's Weir: Deb Snyder, King County Parks
Seaboard Lumber: Kevin Stoops, Seattle Parks



Figure 3.

Elliott Bay Nearshore Habitat Enhancement Project Location

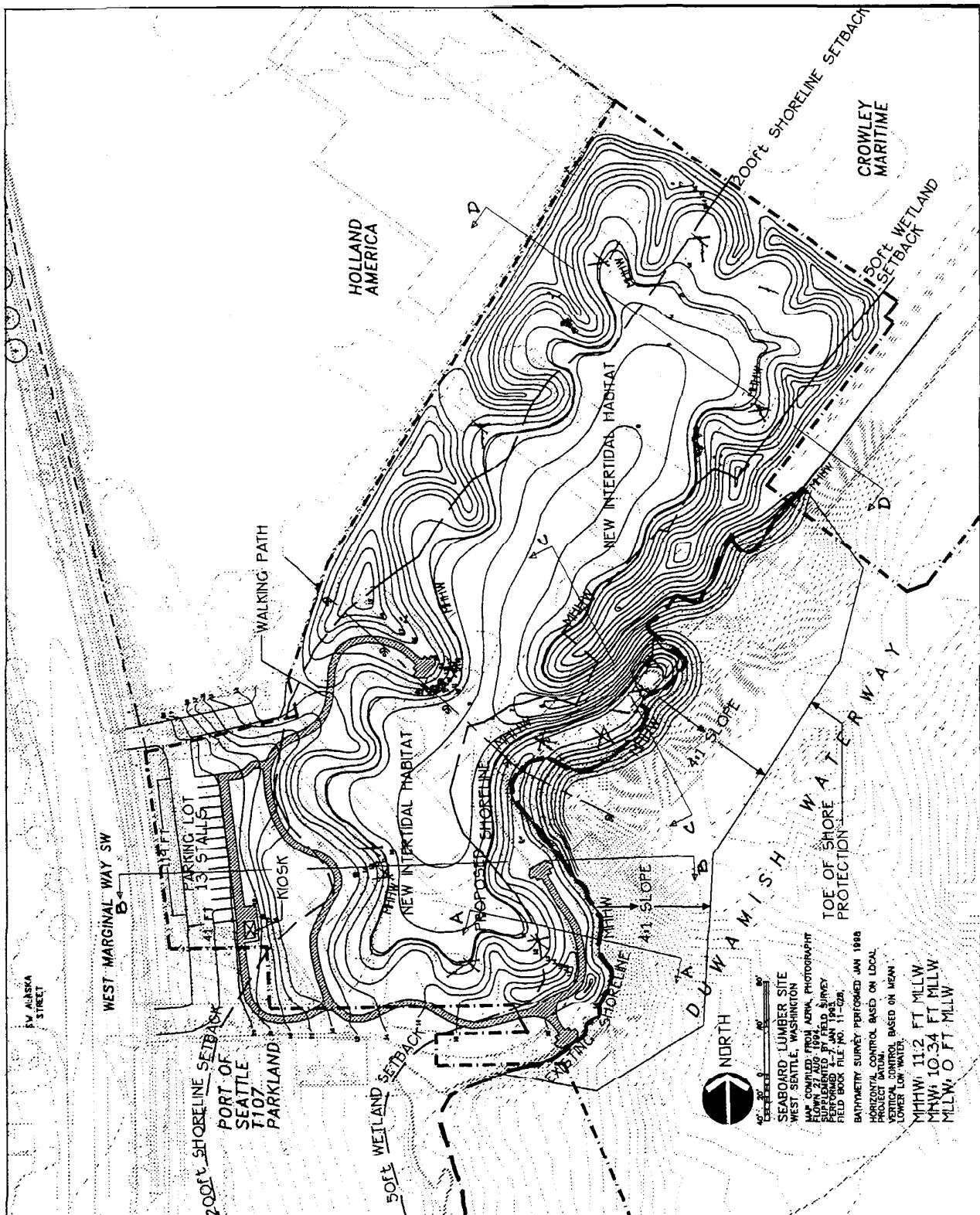
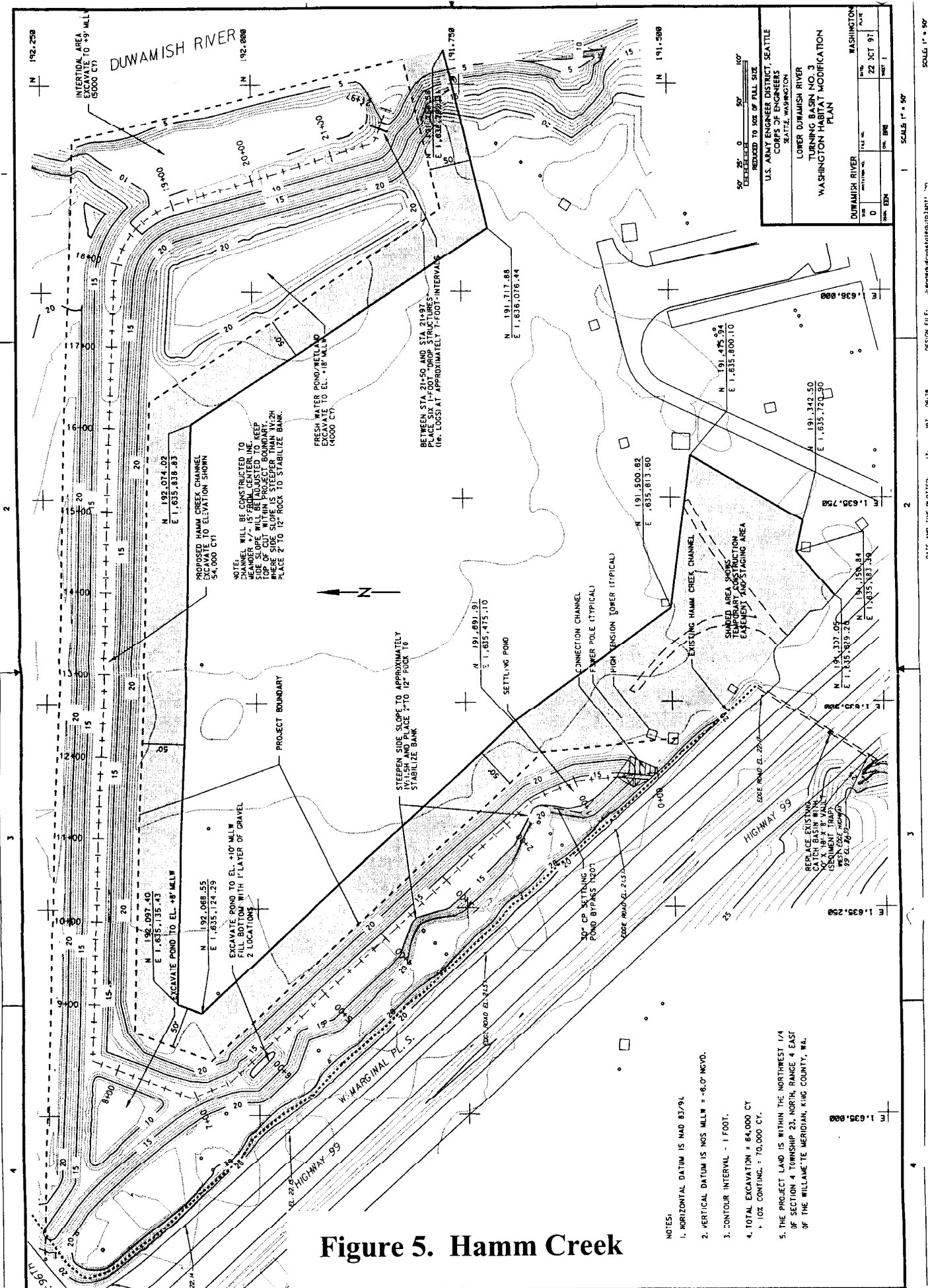


Figure 4.



TURNING BASIN #3 RESTORATION SITE PLAN - OPTION 1

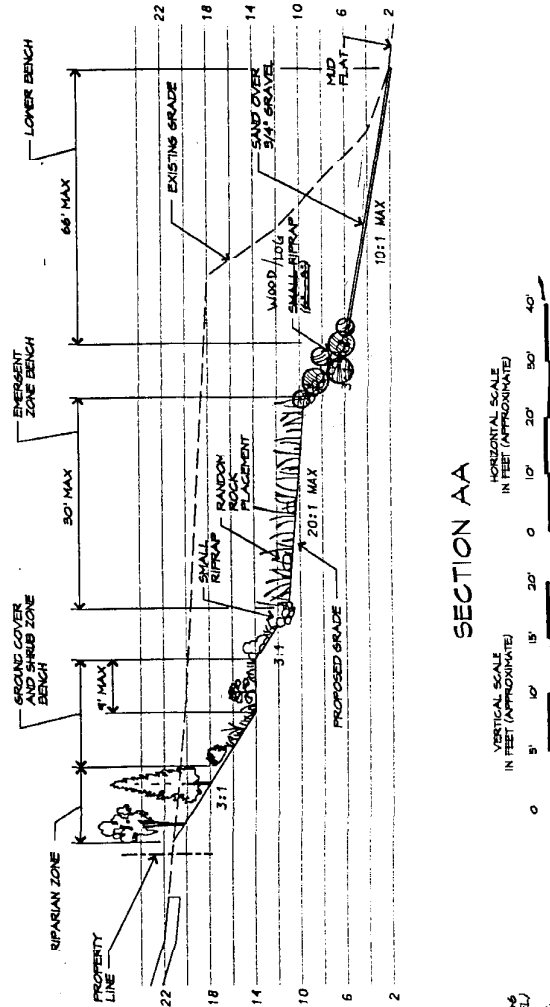
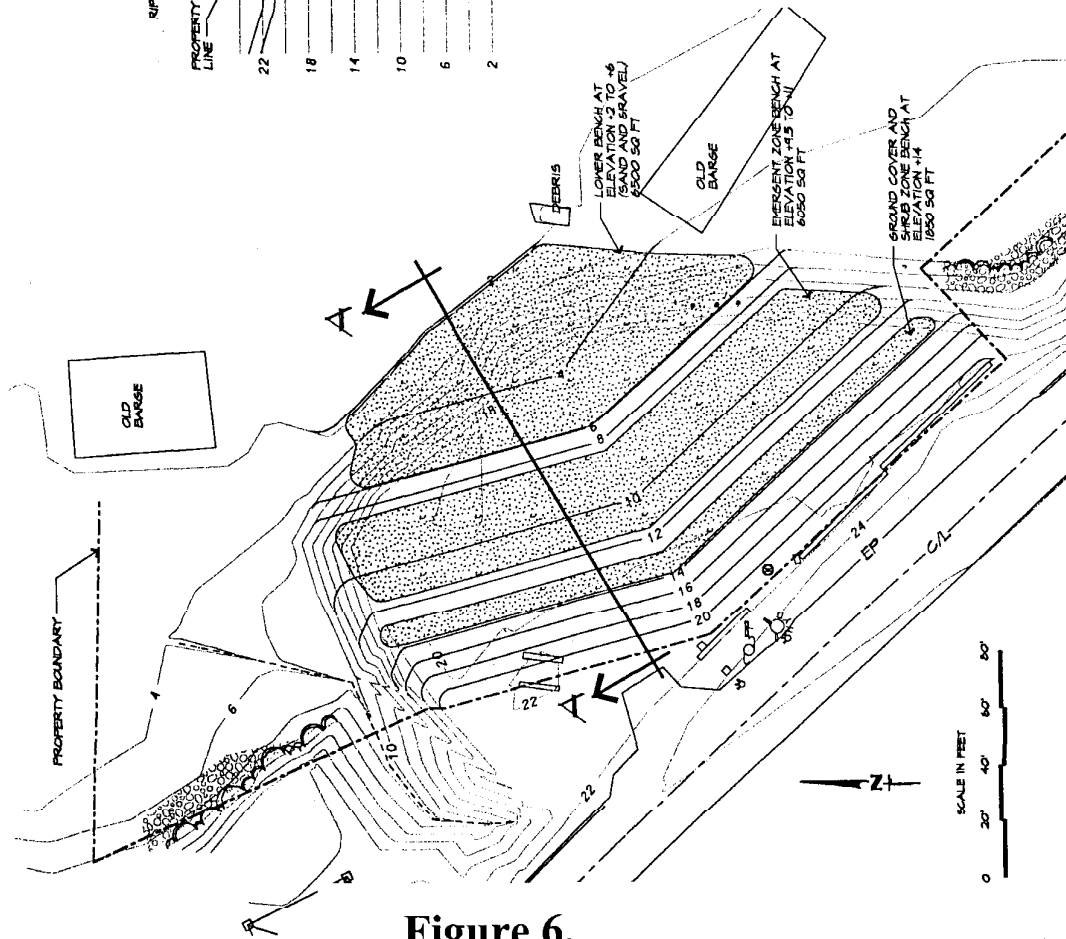
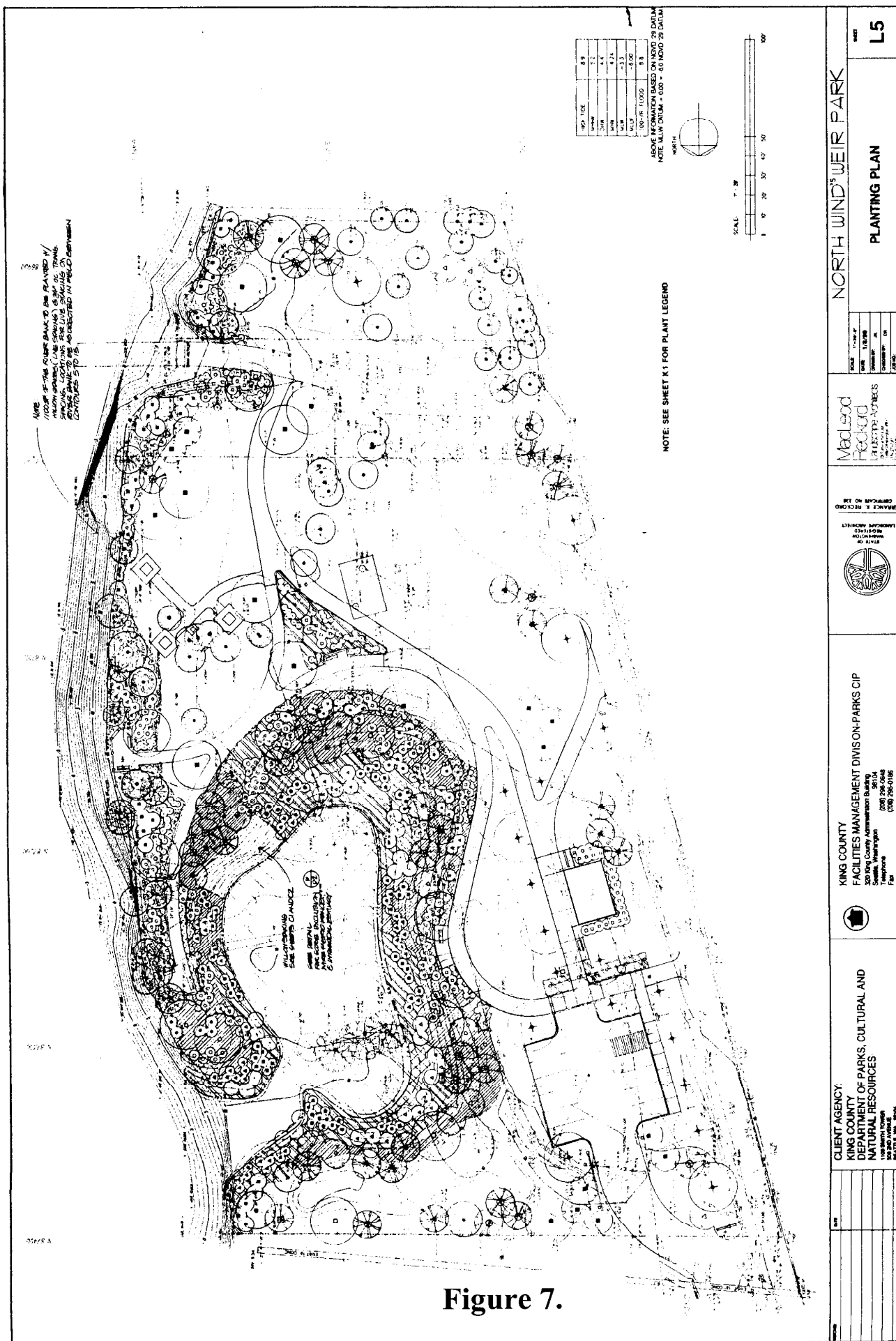


Figure 6.



Porter (Slaughterhouse) Levee: Phase 1

Location: King County

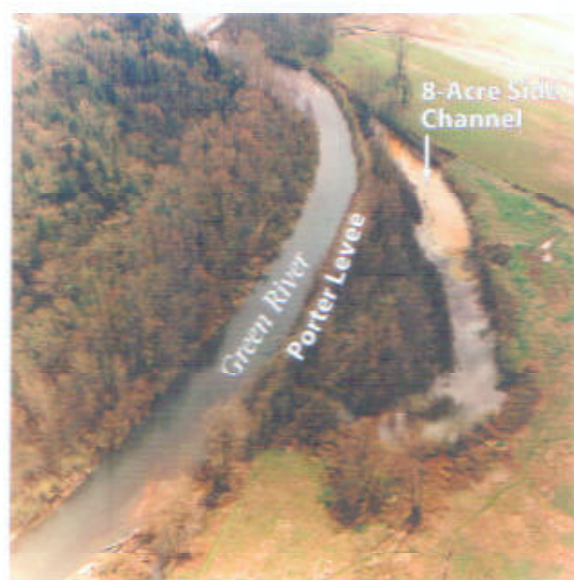
Cost- Recommended Contribution:
\$390,000 (COE Section 1135, Elliot Bay/Duwamish Restoration Panel)
Other Funds: \$30,000 (Trout Unlimited, Mid-Sound Fisheries Enhancement Group, Muckleshoot Indian Tribe)

Lead Agency: Corps of Engineers

This project involves purchasing a 30-acre parcel adjacent to the Green River on the left bank just upstream of Highway 18, and restoring the river's connection to an isolated side channel. The side channel would be connected by excavating a notch in the Porter Levee at the downstream end of the project site, and excavating a channel connection with a possible control weir and log and rock fishway. An upstream connection through a culvert or permeable rock weir may be necessary to provide flow-through. The side channel would then be enhanced through the addition of snags and other habitat features, and the entire site would be replanted in native riparian and wetland vegetation. This reconnection would establish fish access to an 8-acre side channel, and would enhance 13 additional acres of riparian wetland.

Side channel habitat, allowing for salmon refuge from high flows and overwintering habitat for juveniles, is currently extremely limited along the middle Green River. This project would demonstrate an approach to restoring these functions.

Schedule:	1997	1998	1999	2000
Scoping	Complete			
Acquisition				
Design				
Construction		Or		



Phase 1 of the Porter Levee project would excavate a channel opening at the downstream end of the levee (bottom center), linking this side channel with the Green River. Purchase of the entire 30-acre parcel would allow for wetland restoration as well.

Figure 8.



Porter Levee Property



Map produced by:
Visual Communication & GIS Unit
Public Outreach Section
Watershed Coordinator, WI



0 500 1000 Feet

Sediment Remediation Technical Working Group 2000 Summary

Chair: Pat Romberg, King County Water and Land Resources Division
Telephone: (206) 296-8251

The sediment remediation technical working group (SRTWG) assists the Panel in planning and designing sediment remediation projects and in recommending goals and activities regarding King County's (formerly METRO) and the City of Seattle's source control programs.

2000 Activities

Duwamish/Diagonal CSO and Storm Drain Sediment Remediation Project (Figure 9)

Project Manager: Priscilla Hackney, King County DNR

Project Coordinator: Glen St. Amant, Muckleshoot Indian Tribe

Additional funding for planning and design (P&D) activities was restored at the start of 2000 due to the passage of the Consent Decree Amendment. Shortly after work resumed in 2000, it was determined that significant revisions were needed to the 1997 Draft Site Assessment (SA) Report to include important new sediment chemistry data. Analysis and results of the expanded data set were included in the draft 2000 SA Report dated October 2000. This new information raised different options about what area should be addressed in the Alternatives Evaluation (AE) Report. By the end of 2000, the SRTWG had developed a recommendation for the Panel to have the AE Report address the 5-acre area directly in front of the outfalls as a "hot-spot" cleanup action.

During 1998 an unrelated EPA-funded study analyzed sediment chemistry at a total of 300 sediment chemistry stations located in the lower Duwamish River. About 50 of these stations were near the Duwamish/Diagonal site and provided more information about the extent of area exceeding sediment standards in this section of the river. PCBs became the chemical of focus for evaluating the site due to the size of area, because PCBs are a human health concern without a set state sediment standard value.

King County took the lead in revising the SA report to minimize cost and to allow the Ecochem/Anchor consulting team to be used for other required activities. The October 2000 draft SA Report documented that when both the EPA and EB/DRP data sets were combined, the stations exceeding the sediment quality standards (SQS) for PCBs covered a total area of about 22 acres. For planning purposes, the 22-acre area was divided into 6 boxes, which included 3 boxes east of the navigation channel and 3 boxes within the navigation channel (see Figure 10). To assist the EB/DRP Panel in making a decision about which boxes to include in the AE Report, the Panel requested that the consultant develop preliminary cost estimates to perform sediment

remediation at each of the 6 boxes. The cost estimates were prepared in August 2000 and indicated the total remaining EB/DRP sediment remediation funds could cover the cost of remediation for about one box.

Regulatory agency staff (EPA and Ecology) were consulted regarding the feasibility of obtaining the required project permits to perform an interim or partial cleanup action focused on a chemical "hot spot" at the site. To help facilitate a decision regarding "hot spot" cleanup, Ecology staff requested sediment chemistry contour plots of the combined EPA and EB/DRP data for the four chemicals of concern (PCBs, bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, and mercury). After the consultant team completed the contour plots, the SRTWG met with regulatory agency staff in December 2000 to discuss the result. At this meeting, it was agreed that it would be acceptable to have the AE Report focus on the 5-acre area directly in front of the Duwamish/Diagonal outfalls as a "hot spot" cleanup action. This proposal was prepared for presentation at the next Panel meeting scheduled for January 2001.

Copies of the two information packets distributed regarding remediation cost estimates and contour plots are included as attachments to the October 2000 draft SA Report. This report will remain in draft form until it is eventually combined with the AE Report resulting in a combined SA/AE Report (referred to as the "Cleanup Study Report"). This final combined report will assist the Panel in selecting their final recommended sediment remediation project for the Duwamish/Diagonal site. The report will be submitted for public viewing and a public meeting will be held for the project according to the approved Public Participation Plan.

Norfolk Sediment Remediation Project Monitoring (Figure 11)

Construction Project Manager: Priscilla Hackney, King County

Monitoring Oversight: Pat Romberg and Scott Mickelson, King County

King County is conducting post-construction monitoring at the Norfolk to identify any recontamination of the site. During 2000, there were two monitoring reports produced for the Norfolk CSO sediment remediation project. The report dated April 2000 presented the six-month post-construction monitoring data (Panel Publication 27). The report dated October 2000 was the official Annual Monitoring Report (Panel Publication 28) and presented the one-year post-construction data collected April 2000. Results basically showed the only significant recontamination was from PCBs near the Boeing storm drain (SD) pipe. In addition to this sediment monitoring, the Ecochem project team conducted an evaluation of the drainage basin looking for any identifiable significant sources of bis(2-ethylhexyl)phthalate to the Norfolk drainage basin. The conclusions of this work were that no identifiable source of the phthalates was found and the potential need for more source control should be based on the results of recontamination modeling.

A mathematical model had predicted in 1998 that storm water discharged out the Norfolk CSO/SD outfall contained concentrations of bis(2-ethylhexyl)phthalate that were high enough that this source might cause recontamination of sediments within one year. To investigate this possibility, King County decided to conduct a preliminary sampling event six months after remediation was completed at the site. Surface grab samples were collected at a total of four stations that were positioned based on the observed course the discharge water traveled over the site. Inspection at low tide revealed the discharges from the two outfalls had produced small channels in the surface of the sand backfill material. However, instead of proceeding perpendicular to shore, the channel from the Norfolk CSO was angled down river and joined the channel from the Boeing SD that was angled up river. Sampling stations (NFK501 and NFK503) were placed in each channel before they joined and on station (NFK502) was placed in the single channel after they joined (see Figure 11). The fourth sampling station (NFK504) was placed near the up-river side of the backfill and away from the channels.

Results of the six-month post-construction sampling event did not reveal any significant recontamination by bis(2-ethylhexyl)phthalate as was predicted. However, the results indicated the presence of detectable levels of PCBs at all four monitoring stations. The PCB concentrations were highest at the two stations associated with the channel from the Boeing SD (NFK503 and NFK502) and samples at these two stations exceeded the SQS.

To verify the PCB results, King County and Boeing conducted a supplemental sampling event in February 2000. Two stations on the backfill were resampled for 0-2 cm deep samples and included one station in the Boeing SD channel (NFK501) and one station in the Norfolk CSO channel (NFK502). A new station (NFK505) was placed down river of the Boeing channel to see if PCBs were outside the channels (0-2 cm depth). Three new stations (NFK506, NFK507, and NFK508) were sampled inshore of the remediation area near the Boeing SD pipe and samples were 0-10 cm deep. Boeing collected sediment from a storm drain catch basin (NFK509) located upstream in a parking lot. Both Boeing and King County analyzed splits of the samples separately. Complete information regarding this February 2000 sampling event has been included in Appendix C of the Norfolk Annual Report issued October 2000.

Specific results of the February 2000 samples show that PCBs were associated primarily with the area directly in front of the Boeing SD pipe. No PCBs were detected at station NFK501 located in the channel in front of the Norfolk CSO/SD nor were they found at station NFK505 located in the backfill a short distance down river of the channel from the Boeing storm drain. Surprisingly high PCB levels were found in all three of the stations located directly in front of the Boeing SD pipe (NFK506-NFK508). These three stations are located inshore of the remediation area boundary. The dry weight values range from 4,900 ppb to 8,500 ppb and the TOC-normalized (total organic carbon) values range from 385-480 ppm/kg TOC. All three stations are 6 to 7 times the cleanup screening level (CSL) value of 65ppm/kg TOC. On the remediation site, the sample from the Boeing SD channel (NFK503) had much lower PCB values than the three inshore stations, but this station still exceeded the SQS value. The normalized value was 42 ppm/kg TOC, which corresponded to a dry weight value of 180 ppb.

Results from the catch basin sediment value were inconclusive because the King County laboratory obtained a dry weight value of 256 ppb, but the analysis performed for Boeing obtained 27,900 ppb. The TOC normalized value was 1.35 ppm/kg TOC (below the SQS), but the Boeing normalized value was 116 ppm/kg TOC (above the CSL). The catch basin sediment sample was unusual because it contained about 90% water and had an exceptionally high TOC value of 19%.

The sediment chemistry data shows that the most likely source of PCB recontamination to the backfill is from an area of contaminated sediment directly in front of the Boeing SD pipe. This sediment is located inshore of a row of pilings at the inshore edge of the remediation area. The distance between the end of the Boeing SD pipe and the pilings is about 15-20 feet. It appears that the discharge of the storm water from the pipe is sufficient to wash contaminated sediment out onto the backfill material. Recontamination appears to be limited to the channel made by the storm water discharge. A Boeing Company representative (Mr. Skip Fox) was notified of the PCB recontamination situation at the Norfolk sediment site. He told King County staff that his company would hire a consultant firm to evaluate the situation and recommend a solution to stop the PCBs from being washed onto the Norfolk backfill. Regulatory agencies have been informed of the PCB recontamination via transmission of the Norfolk Annual Report that contained this information.

Project permits require an annual monitoring schedule, so the one-year sampling was conducted April 2000 at the same four stations sampled after six months. At each station a 0-2 cm deep sample was taken to reflect current change and a 0-10 cm deep sample was taken to allow comparison with sediment management standards (SMS). Values for metals in all samples were found to be similar to the baseline values measured one year earlier. For organic chemicals, the 0-2 cm samples had the most detected chemicals, which corresponds to a higher amount of fine material and generally higher TOC values (0.34 to 0.79% TOC compared to 0.14 to 0.24% TOC in 0-10 cm). The PAHs involved one LPAH (phenanthrene) and three HPAHs (chrysene, fluoranthene, and pyrene), but values were well below the SQS (typically, less than 10% of the SQS value). Low levels of bis(2-ethylhexyl)phthalate were detected and the concentrations were not statistically different from those detected in the analytical method blank. The only high PCB values were at the two stations located downstream of the Boeing SD. These two stations (NFK502 and NFK503) exceeded the SQS as in earlier samples and the 1-10 cm sample at NFK503 exceeded the CSL. The PCB values at these two stations appear to remain about the same as observed during the six-month sampling event.

Due to the concern about potential recontamination by bis(2-ethylhexyl)phthalate, the Ecochem consultant team was directed to investigate the Norfolk storm water basin for potential significant sources of this chemical. During the first quarter of 2000, the Ecochem team completed their report titled "Evaluation of Source Control Potential in the Norfolk CSO Drainage Basin" (results presented at the SRTWG meeting April 20, 2000). A detailed review of various storm drain maps showed that the true basin size was about 65 acres. Previous efforts to

calculate storm water runoff volume had used a basin size that was about one-third larger (92 acres). The effect of using a one-third larger basin size in previous modeling would be to over-estimate the calculated storm water volume by one-third and subsequently over-estimate the annual chemical loading by one-third.

The Ecochem team used several approaches to look for potential chemical sources in the drainage basin including the following: 1) field reconnaissance in the drainage basin, 2) inspection of reports from City of Seattle Drainage and Wastewater Utility, 3) review of Ecology records, and 4) review of historical maps. When the investigation was complete, the Ecochem team concluded they could not find any major industrial or commercial operations in the drainage basin likely to be sources of bis(2-ethylhexyl)phthalate.

The report provides a recommended approach for future work. The first recommendation is to use the annual monitoring data to verify that bis(2-ethylhexyl)phthalate is actually causing recontamination as the model predicted. If recontamination does not occur, then this would indicate the mathematical model is too conservative or that incorrect input values were used. If recontamination does occur, the report recommends an initial bioassay investigation to verify that the bis(2-ethylhexyl)phthalate is causing toxicity. The need to consider further source control would be based on the toxicity testing results.

Because the one-year monitoring event at Norfolk has not shown any significant recontamination by bis(2-ethylhexyl)phthalate, there is no need to recommend any bioassay testing at this time. The source of PCB recontamination has been linked to the area directly in front of the Boeing SD pipe so no further action has been taken by the EB/DRP program other than to notify a Boeing Company representative. The two-year post-construction monitoring event is scheduled for April 2001 and will determine whether chemical levels have changed at the four monitoring stations.

Pier 53-55 Sediment Cap and Enhanced Natural Recovery Area Monitoring (Figure 12)

Project Manager: Cheryl Paston/Martha Burke, City of Seattle Public Utilities

Monitoring Oversight: Pat Romberg and Scott Mickelson, King County

The Pier 53-55 Sediment Cap and Enhanced Natural Recovery Area sediment remediation project was completed in March 1992. The project entailed clean-up of a 4.5 acre area located offshore of Piers 53, 54, and 55 in downtown Seattle. Project permits required a ten-year monitoring program to determine the extent of recontamination and verify that the project continues to function as designed. Previous monitoring events occurred in 1992, 1993, and 1996. The ten-year monitoring event is scheduled for 2002.

Past experience has shown that activities at the adjacent Washington State Ferry Dock can effect the Pier 53-55 remediation project. In 1993, piling-removal activities on the north side of the ferry dock caused recontamination of the Pier 53-55 remediation project. A major expansion

project planned for the ferry dock could have the potential to effect the Pier 53-55 remediation project. However, at the present time, the expansion plans for the ferry dock have been canceled due to a large funding shortfall that resulted when voter Initiative 695 (reduced vehicle license plate fees) was approved.

Elliott Bay Central Waterfront Clean-up Study (Figure 13)

Project Manager: Martha Burke, City of Seattle Public Utilities

Project Coordinator: not yet assigned

Some EB/DRP Panel members requested that the City provide an update regarding plans for any potential sediment remediation project on the Seattle Central Waterfront. At the March 16, 2000 SRTWG meeting, Martha Burke presented a status memo summarizing past studies, field samplings, and a history of negotiations with the U.S. Army Corps of Engineers up to the point where Planning and Design (P&D) funds were exhausted in 1997. She discussed results of the most recent sediment sampling event and provided copies of the surface grab sample analytical results (chemical and bioassay) and a King County technical memorandum reviewing the sediment analytical data. Also, she presented three potential scenarios for the Central Waterfront project as follow: 1) Do not do any more work on the Central Waterfront; move remediation funds to expand the Duwamish/Diagonal project, 2) Reduce the project area to the area associated with Piers 56-57; evaluate remediation alternatives sufficiently to determine if we want to proceed with any, and 3) Proceed with the Central Waterfront project as originally proposed.

Martha discussed the pros and cons of each scenario and recommended further work on Option 2 (focus on Piers 56-57). She provided a short scope of work prepared by Anchor Environmental. The main activities in the scope of work included: 1) Evaluate in more detail the engineering feasibility and cost associated with sediment remediation in the Option 2 focus area, 2) Discuss with WDNr their willingness to accept capping as a remediation alternative, 3) Determine the short and longer-term plans anticipated by owners of the Piers, and 4) Report information back to the SRTWG.

After some discussion, the consensus of the SRTWG was to continue refining the alternatives analysis and cost estimates for the Duwamish/Diagonal project before revisiting the options presented for continuing the Central Waterfront cleanup project.

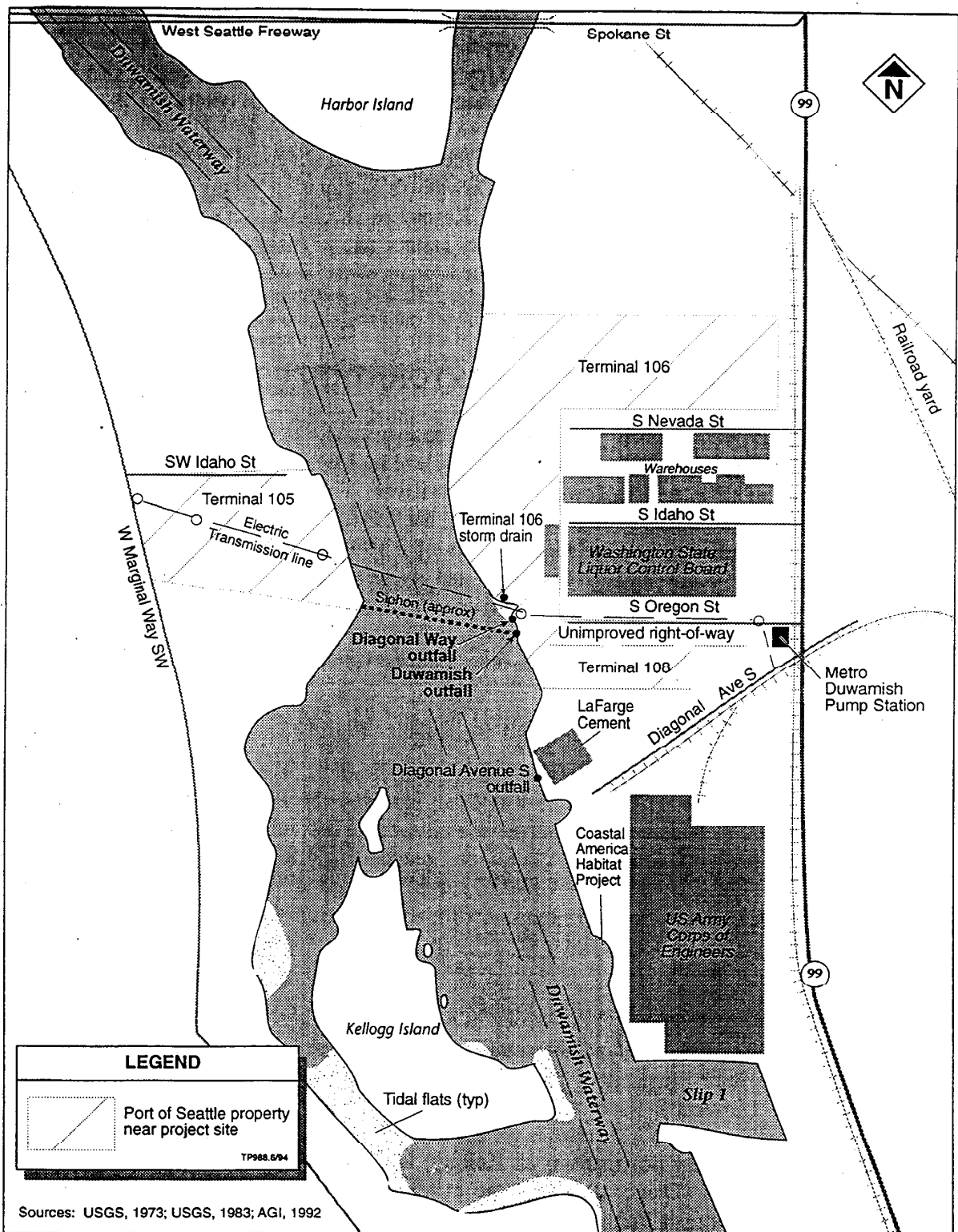


Figure 9. Duwamish/Diagonal CSO/SD

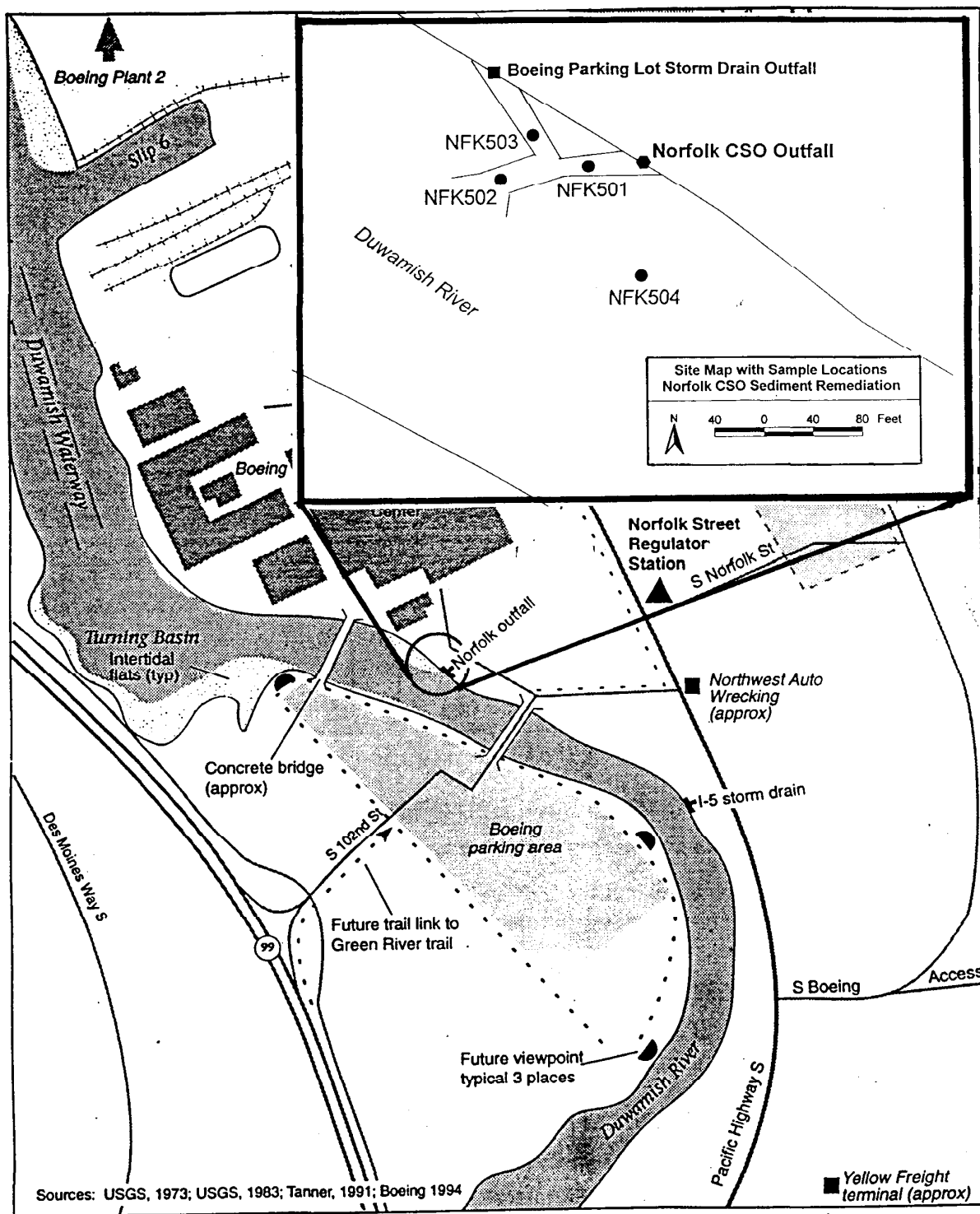


Figure 11. Norfolk CSO